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Science and the Cenotaph.

THE second anniversary of the Armistice of November 11, 1918, has come and gone, and the whole nation, united in a common impulse of pious and grateful remembrance, has done solemn homage to the memory of the glorious dead. King and people, leaders and comrades, have paid reverence to the remains of that unknown hero who has been laid to rest in our national shrine, and who typifies the humble and silent sacrifice of those many thousands to whom we owe the survival of civilisation.

To the soldiers of science, to whom duty and self-sacrifice are, or ought to be, ever-present ideals, the ceremony of last Thursday should have made a special appeal. In the great struggle which terminated two years ago they were not backward in taking their places in the fighting organisation of the nation. With very few exceptions they put their special gifts and training at the service of the State. The devotion and fearless courage of the medical branch of the scientific profession have earned universal recognition. Thousands of the younger students in all faculties, who had, before the war, patriotically joined the Officers Training Corps, came forward in 1914 as one man and filled the gap in the supply of officers until the new armies were ready. Of the older men of science a great number joined fighting units and shared with the rest the hardships and dangers of the trenches. Many valuable lives were thus sacrificed which a wiser distribution might have spent to better advantage:

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one remembers a mathematician of great ability who served as an infantry officer and was killed by the explosion of a bomb store, and the tragedy of Moseley, who fell at Gallipoli. Others, again, debarred from active service in the trenches, took up work behind the lines or in the technical services—work not without its perils, as is shown by the fate of Keith Lucas and Bertram Hopkinson, two distinguished fellows of the Royal Society, both killed in aeroplane accidents, who died a soldier's death as truly as if they had fallen in action. Another well-known scientific researcher spent weeks experimenting in a submarine in a highly dangerous zone. Such examples might be multiplied a hundredfold. In gas warfare, sound ranging, air work, submarine detection, etc., a vast number of men of science were to be found, and gave their labours and their lives unstintingly. Many made the supreme sacrifice, and, on the whole, men of science proved themselves to be capable leaders and efficient organisers and administrators even in fields widely separated from those of their peace-time activities.

Scientific workers may thus join in the universal homage to the fallen with a pure heart and the consciousness of duty done. They, at all events, are free from the reproach of having in any way profited by the general suffering, or of having exploited the war for selfish ends. Whilst the cost of living still soars, and salaries and wages, in industry, commerce, and administration, try to keep pace with it, the remuneration of scientific workers, poor already before 1914, is gradually being brought down to the starvation limit, the small nominal increase given in some cases being very far indeed from making up for the decreased purchasing power of the pound.

The question not unnaturally suggests itself: How many among those silent crowds that stood bareheaded last Thursday have given any effective help even to one of the millions of returned soldiers who, in the present jostle of selfish appetites, are asking for work and bread from those whose businesses and wages they have saved? And, in particular, how many have given a thought to those struggling scientific toilers who have put away their uniforms and strive vainly to exist on inadequate salaries, under crushing taxation and to meet an ever-rising cost of living? Yet the brains of these men were no mean factor in winning the war, and it should be increasingly obvious that the salvation of a modern State, both in peace and war, must depend nowadays upon trained observation and intelli-

gence—that is, upon science. Only impartial observation and study, such as a scientifically trained mind alone can give, will bring us nearer to the solution of the tremendous problems in sociology and economics which confront this generation. Only science can find new sources of energy for an industrial system which is largely wasting its resources in coal and oil, and, for that reason alone, is doomed to bankruptcy: a strike of miners may be settled, but what politician will settle a strike of the coal itself? How is that new and marvellous roadway of the air to be opened up and made commercially available for future generations without not merely routine technical knowledge, but also that insight of genius which is the rare gift of selected souls? And how can the heritage preserved for us by the glorious dead be defended against the dangers which all history tells us are certain to arise again if the nation has not a reserve of trained and inventive intelligence at its service?

In those days, of which the memory now seems to be fading so quickly, when the whole Empire stood thrilled and tense it was commonly repeated that we had at last become conscious of the value of science, that the old mistakes would not recur, the old neglect would be a thing of the past. We look in vain in the public Press for a repetition of such statements nowadays. We have heard of a "land fit for heroes"—but perhaps the true meaning of the phrase may have been that it would take a hero to exist in the new world. Possibly the phrases about the nation's recognition of science may have been mere words, but human beings cannot live upon such diet. The multiplication of Government Departments supposed to foster research, or of highly paid research administrators (with or without scientific qualifications), will not really recruit the ranks of true scientific workers unless something is done, and done quickly, to make the existence of such workers tolerable. That these ranks are being depleted at the present time there is ample evidence; it is becoming increasingly difficult to find suitable candidates to fill university posts, and the more responsible the posts the more difficult it is to fill them. It is clear that the better brains are being gradually squeezed out of the scientific careers. If this process goes on much longer the nation will awake one day to find that it has effectually killed the goose which laid the golden eggs.

Most of us receive daily appeals for war memorials of various kinds. Would not the best,

and, in the end, the cheapest, war memorial be a growing and efficient body of brain-workers, able and willing to solve the problems which the war has left in its train, and to help the nation in its hour of need? For leaders both in peace and war we must find and train men who will be competent to use the national resources in the most effective manner. Scientific workers are naturally marked out by their progressive instincts and severe training to serve not merely in an advisory capacity in the councils of the nation, but also as executive officers. Moseley and others of his type will not have died in vain if the Cenotaph reminds us that men of science must take an active part in the affairs of State, in guiding the development and thought of the nation, and in seeing that the bitter lessons learnt during the last six years are not forgotten.

This end will not be attained by service on committees, whether for chemical warfare or any other subject. If the War Office seeks to be scientific it should establish within itself, as the Admiralty has done, a research department with distinguished men of science as permanent members of the staff to suggest and supervise work on methods of modern warfare. It would be the business of such officers to make use of science for purposes of national security, and workers in university or other laboratories could please themselves whether they co-operated or not in particular researches or experiments. We can understand the objections offered by Prof. Soddy and others against men of science associating themselves as a body with problems of this type, but until human nature reaches a higher ethical plane than it occupies at present we must have a War Office, and an essential part of it should be an able scientific staff, the members of which would be responsible for making us strong enough to meet any crises which the future might bring. No committee of sixty or more associate members can do this, and none would be necessary if the War Office ranked a scientific service with the General Staff, as it should do, instead of inviting scientific workers to devote their time and knowledge to "offensive and defensive aspects of chemical warfare" for little more than out-of-pocket expenses.

We claim for science a much more responsible position, and a far higher appreciation of its worth, than our war leaders offer to it even now; and we do so because we remember that thousands of young lives were lost through its neglect. When we bow our heads before the Cenotaph we

think of the highly trained men of science who were killed at Gallipoli or drowned in the mud of Flanders while Ministers turned for advice to alchemists and circle-squarers, or confused great chemists with dispensers of drugs, and we wonder whether even now anyone in power realises what civilisation has lost through the sacrifice of creators of knowledge. While we mourn their loss, let us work and pray for the scientific enlightenment of the leaders into whose hands the destinies of the nation are entrusted, so that we may be assured of strong and effective guidance whatever is before us.

The Newer Spiritualism.

Phenomena of Materialisation: A Contribution to the Investigation of Mediumistic Teleplastics. By Baron von Schrenck-Notzing. Translated by Dr. E. E. Fournier d'Albe. Pp. xii+340. (London: Kegan Paul, Trench, Trubner, and Co., Ltd.; New York: E. P. Dutton and Co., 1920.) Price 35s. net.

OF making many books" on spiritualism "there is no end," and study thereof "is a weariness of the flesh." Certainly such is the effect of reading a ponderous and repellent volume of 200,000 words conveying the story of séances the details of which are as like one another as peas in a pod. The author describes it as "really a monograph on materialisations," since it deals, in the main, not so much with communications from the dead as with exudations from the living. These, in pseudo-scientific jargon, are defined as "ideoplastic" or "teleplastic," taking the shape of fluidic threads or psychic discharges from the mouth, armpits, and other parts of the body, sometimes returning thereto, and often accompanied by blood. Both the author and translator agree in assigning them to "a new, or, rather, a hitherto unexplored, function of certain human organisms" which have "a spiritistic interpretation" as "conductors of psychic impulses."

The book made a considerable stir in Germany on its publication in 1913; here, it was the subject of a damaging review by Miss Verrall in the *Proceedings of the Society for Psychical Research*, July, 1914. The translation before us was made by Dr. Fournier d'Albe in consultation with Mme. Bisson, in whose house the medium lived, and whose reports on the sittings make up the substance of the book. It is to her that the medium has "lent her remarkable powers" in return for board and residence. The real name of the medium, whose pseudonym is "Eva C.," is

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said to be Marthe Béraud; and while Baron von Schrenck-Notzing says that he "is not justified in publishing details concerning her personal and family affairs," he withholds nothing in respect of detail about herself, both physically and mentally. As to the latter, she is described as abnormally emotional, subject to violent outbursts of anger, very amenable to influences, and nursing illusions that her charms lead the male sex easy captives. The numerous photographs of her which are sandwiched between faked spirit photographs show that physical beauty forms no part of her attractiveness. She is, in brief, a confirmed erotic and neurotic woman, who, according to information from an independent source, nurses the belief that she is an incarnation of Thais.

As already said, the record of the sittings, which extended from June, 1909, to July, 1913 (they were held chiefly in Paris), has a dreary uniformity. Mme. Bisson was always present; her watchful care over "Eva C." suggests more than friendship, and awakens suspicions as to collaboration in "materialisations." The appointments were as usual; the medium sat in a dark cabinet, Mme. Bisson hopping in and out, and then joining the other sitters, rarely more than three or four, in a room dimly lighted by a red lamp; a white light, as all spiritualists agree, "acting destructively on the pseudopods or psychic projections from the medium's body." Apart from M. Richet, a somewhat credulous savant, no prominent man of science was at the sittings, save one Dr. Specht, who, after three attendances, said that he had been "shown materialisations which do not exist." Baron von Schrenck-Notzing naïvely adds: "On account of this negative attitude, Dr. Specht was not invited to further sittings." Difficulty met attempts to secure teleplasma; "Eva C." was backed by Mme. Bisson in her objections, but of the two samples which Baron von Schrenck-Notzing secured one was recognisable as human skin, and the other, under microscopic examination, a mucus-like substance, showed "cell detritus, numerous microbes, and some wool (from dress)." Convinced as he is that the teleplasmic phenomena have a "spiritual interpretation," it is to the credit of Baron von Schrenck-Notzing that he admits explanations, if only to controvert them, such as are supplied by the facts of hysterical rumination, when the patients bring up matter which they have swallowed, and of excretions due to excitation.

The reviewer can deal only with such statements as fill this book at their face value. The *onus probandi* lies on those who make them. As Faraday said in a lecture delivered before the